

## **REMARKS**

### **Claim Amendments**

Claim 1 is amended to correct a typographical error. The compound particulates are inorganic and an error was created in claim 1 partway through prosecution of the present application. No new matter has been added. The recitation of "organic" compound particulates in claim 1 was inadvertently repeated in the last several submissions.

New claim 6 is added to more particularly define the present invention and to specify components for the inorganic oxides other than silica in the inorganic compound particulates. Support therefor appears at least in Examples 1-3, 5, 6, 8 and 9 in which surface modified inorganic compound particulates were produced with the inorganic oxides listed in new claim 6. No new matter has been added.

### **Prior Art Rejections**

Claims 1 and 5 stand rejected under 35 U.S.C. §102(b) for anticipation by U.S. Patent No. 5,316,854 to Lin et al. as evidenced by U.S. Patent No. 4,373,060 to Ching. Applicants respectfully traverse this rejection for the following reasons.

The present invention is directed to an inorganic compound sol that includes inorganic compound particulates having a surface modified by an organic compound. The inorganic compound particulates are composite particulates composed of silica and at least one inorganic oxide. The weight ratio of the silica to the inorganic oxide other than silica is 3 to 500. The composite oxides are produced by simultaneously adding an alkaline metal silicate and an alkalinized soluble inorganic oxide to an alkali aqueous solution.

In addition, the surface of the inorganic compound particulates is modified by an organic compound. The surfaces of the inorganic compound particulates react with the surface modified organic compound to produce a modified surface of the inorganic compound particulates. While in producing the surface modified inorganic compound particulates an organic compound is mixed with the inorganic compound particulates, the resulting composition is not a mere mixture of the inorganic compound particulates and the organic compound. Instead, the final

product is inorganic compound particulates that have been modified by the organic compound, i.e., have been reacted therewith.

The prior art of record fails to teach or suggest such an inorganic compound sol. The Lin patent describes production of coating compositions that contain two oxides. Example VI of the Lin patent describes a process of mixing together a silica sol with  $\gamma$ -glycidoxypropyl trimethoxysilane (an organic compound which may be used in the present invention for surface modifying the inorganic compound particulates), along with cerium oxide. The silica, organic compound and cerium oxide are mixed together at room temperature overnight to produce a coating composition to which quartz plates are immersed to coat the plates with the mixture. Nowhere does the Example VI describe inorganic compound particulates which are surface modified by inorganic compound. At best, the organic compound is used as a matrix in which oxide particles are dispersed.

The silica sol used in Example VI of LUDOX LS (DuPont) is asserted as meeting the claimed inorganic compound particulates because LUDOX LS includes  $\text{Na}_2\text{O}$  and  $\text{SiO}_2$  as indicated by the Ching patent. While LUDOX LS is a silica sol, it is not a composite metal oxide sol. Moreover, none of the oxide components disclosed in the process of the Lin patent are surface modified by an organic compound.

In the present invention, the surface modifying organic compound is heated at an elevated temperature (e.g. 50° or higher) in order to react the inorganic compounds with the organic compounds and to thus modify the surface of the inorganic compound. The inorganic oxides disclosed in the Lin patent are not "modified by an organic compound" according to the present invention. As such, claims 1, 5 and 6 define thereover.

To the extent that LUDOX LS is a silica composition that also contains  $\text{Na}_2\text{O}$  in a weight ratio of 285.7 silica to  $\text{Na}_2\text{O}$ , nowhere does the Lin patent teach that the inorganic oxides of silica and  $\text{Na}_2\text{O}$  are actually inorganic compound particulates of a composite oxide that is produced by simultaneously adding alkali metal silicate and alkali soluble inorganic oxide to an alkali aqueous solution. Moreover, the LUDOX LS silica sol is not surface modified by an organic compound.

Application No. 09/038,230

Paper Dated: June 24, 2005

In Reply to USPTO Correspondence of February 25, 2005

Attorney Docket No. 1217-980347

New claim 6 requires that the other inorganic oxide which forms part of the inorganic compound particulates is one of seven specific oxides, none of which are described in the Lin patent as being included in a compound oxide with silica. At best, the Lin patent discloses that some of these oxides may be contained within a silica-based matrix also containing cerium oxide particles. The oxides of the Lin patent are not composite oxide particulates as claimed. Hence, claim 6 further defines over the applied art.

In view of the failure of the cited references to teach or suggest a sol of inorganic compound particulates composed of silica and at least one inorganic oxide, the particulates having a surface which is modified by an organic compound, claims 1, 5 and 6 define thereover. Allowance of claims 1, 5 and 6 is respectfully requested.

Respectfully submitted,

THE WEBB LAW FIRM

By



Julie W. Meder

Registration No. 36,216

Attorney for Applicants

700 Koppers Building

436 Seventh Avenue

Pittsburgh, Pennsylvania 15219-1845

Telephone: 412-471-8815

Facsimile: 412-471-4094